Aug. 20, 1935. A. L. LEMAN 2,011,769

TUBING HEAD

Filed June 24, 1933

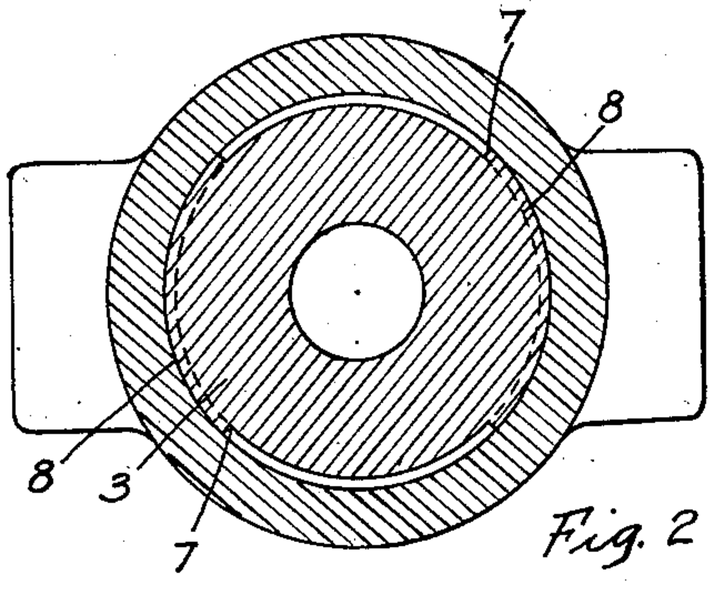

Fig. 2

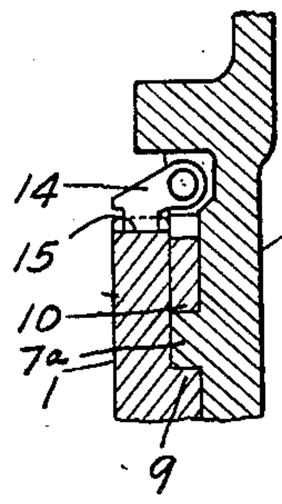

Fig. 3

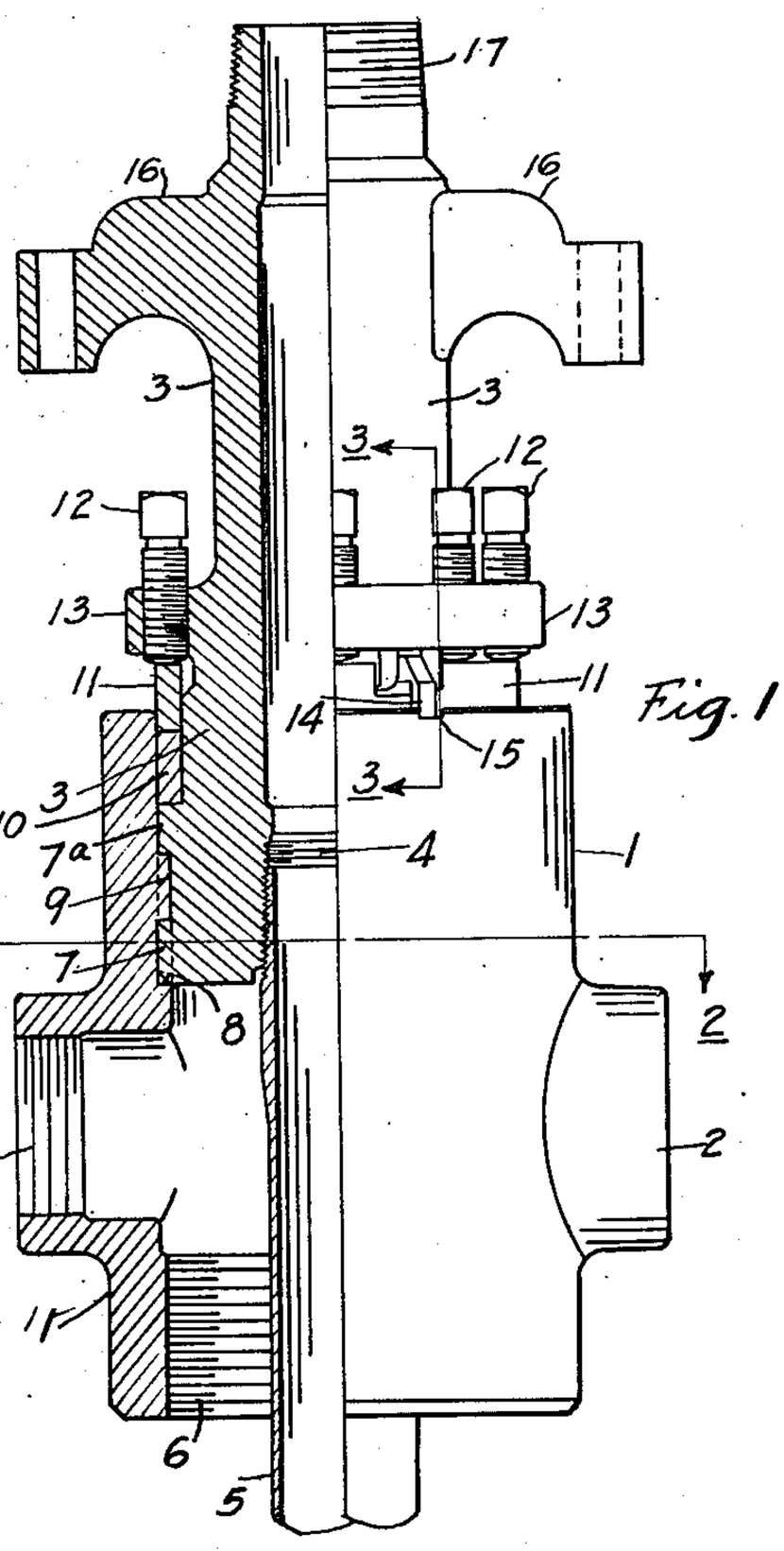

Fig. 1

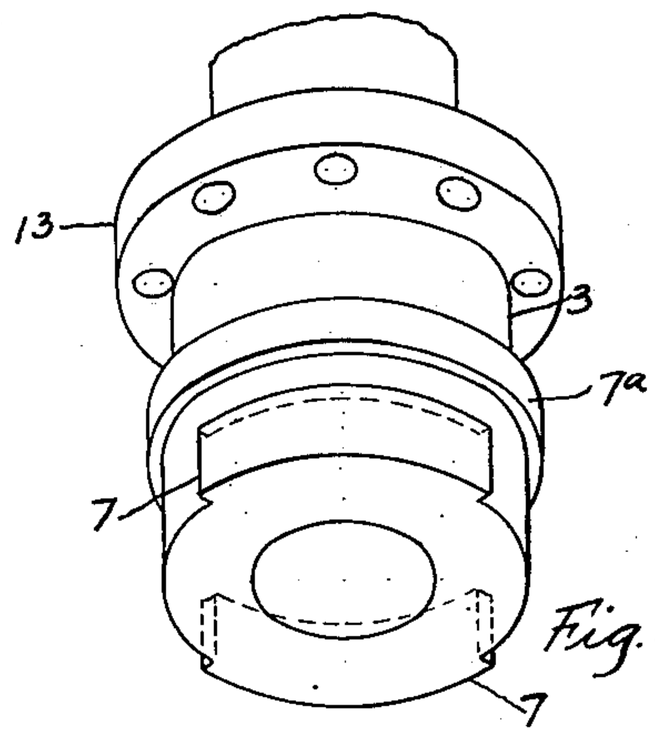

Fig. 4

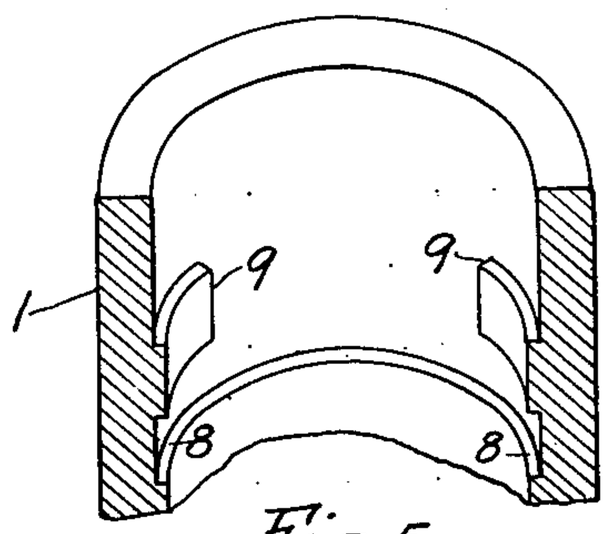

Fig. 5

INVENTOR

A. L. Leman

by Edward A. Laurence

Attorney

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TUBING HEAD

Arthur L. Leman, Toledo, Ohio, assignor to The National-Superior Company, Toledo, Ohio, a corporation of Delaware

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4 Claims. (Cl. 285—22)

The principal object which I have in view is the simplification of the structure of tubing heads and the reduction of the number of parts employed therein.

Another object is the provision of means whereby the parts may be readily and quickly assembled and disassembled.

In the case of my improved tubing head, the inner member, which usually supports a string of tubing is secured within an outer member which may support an outer string of tubing, by means of what may be termed a bayonet joint between the members, the inner member being first inserted into the outer member and then partially rotated.

Means are provided for preventing accidental relative rotation between the members which would result in disassemblage.

I provide new and improved means for packing the joint between the members.

Other novel features of construction, and also arrangement of parts, will appear from the following description.

In the accompanying drawing, wherein I have illustrated a practical embodiment of the principles of my invention, Fig. 1 is a view partly in side elevation and partly in vertical section.

Fig. 2 is a sectional view taken along the line 2—2 in Fig. 1.

Fig. 3 is a broken sectional view taken along the line 3—3 in Fig. 1.

Fig. 4 is a broken perspective showing the inner member of my improved tubing head.

Fig. 5 is a broken view partially in perspective and partially in vertical section, showing the outer member.

Referring to the drawing, 1 represents the outer member of my improved tubing head which may be tubular and provided with the usual lateral vents 2, and 3 represents the inner member, also usually tubular, and which is of proper diameter to fit the upper bore of the member 1.

The bore of the member 3 is shown internally threaded at its lower end as at 4, and the upper end of the string of tubing 5 is shown screwed therein. Likewise, the lower bore of the inner member 1 may be threaded, as at 6, so that the upper end of an outer string of tubing may be screwed therein.

The perimetral surface of the lower end of the member 3 is provided with a plurality of arcuate ribs 7 disposed in a horizontal plane and spaced apart at their adjacent ends, which is more clearly shown in Fig. 4. 8 represents an annular shoulder formed in the bore of the member 1, upon which shoulder the ribs 7 of the member 3 rest when the parts are assembled, thus limiting the downward insertion of the member 3 in the member 1 and also supporting the tubing 5 from above.

Above the shoulder 8 the bore of the member 1 is provided with a plurality of arcuate ribs 9 disposed in the same horizontal plane and having their ends spaced apart. The ribs 7 and 9 are the same in number and the gaps between the ends of the ribs 9 are sufficient to permit the ribs 7 to pass down through the same. The space between the shoulder 8 and the ribs 9 is sufficient to receive the ribs 7 of the member 3. Above the ribs 7 the member 3 is provided with an annular shoulder 7*a*, the space between said ribs and said shoulder being sufficient to receive the ribs 9 of the member 1.

When the members are to be assembled, the member 3 is turned so that its ribs 7 register with the gaps between the ribs 9 of the member 1, and the member 3 is then inserted downwardly into the member 1 until the ribs 7 rest upon the shoulder 8. The member 3 is then partially rotated until its ribs 7 engage under the ribs 9 of the member 1. The parts are thus locked together by what might be called a bayonet joint.

Above the rib 7*a*, the external diameter of the member 3 is reduced to form an annular seat between the members, into which seat is inserted the compressible packing 10 upon which bears the lower edge of the annular metal gland 11 which is held in place by the member 1. 12 represents compression screws screwed through threaded holes in a radial flange 13 of the member 3 and impinging on the gland 11, to compress the packing 10 and seal the joint between the members 1 and 3. It is thus apparent that the packing 10 is supported from below by the annular shoulder 7*a* of the member 3.

To prevent accidental relative rotation between the members 1 and 3 which might result in disengaging the bayonet joint, I provide the member 3 with a pivoted dog 14 which is arranged to drop into and engage a properly placed seat 15 on the top of the member 1.

The member 3 is provided adjacent its upper end with oppositely disposed elevator lugs 16 which may be engaged by hoisting means for raising and lowering the member 3. Above the elevator lugs 16, the member 3 is provided with the threaded section 17, which is arranged to secure a coupling thereto, for providing an external passage to the inner string 5.

It is evident from the foregoing that my im-

proved tubing head is an exceedingly simple and inexpensive construction. Its parts are few and rugged and thus unlikely to become worn or impaired. The joint between the two members which form my tubing head is efficiently packed against the escape of fluid or liquid and the packing can be readily tightened up or removed. Furthermore, the members can be quickly and easily unlocked by relative rotation between them for the raising or removal of the member 3 and the tubing supported therefrom, and as quickly and conveniently can the tubing head be assembled.

I claim:—

1. In a tubing head having a continuous upper bore, the combination of a unitary tubing hanger, means for securing said hanger within said bore to prevent longitudinal movement therewith, an annular seat on the tubing hanger above said means, said seat forming a packing chamber with said bore, a packing in said chamber, and means for compressing said packing.

2. In a tubing head having a continuous upper bore, the combination of a unitary tubing hanger, means for securing said hanger within said bore by partial rotation therein, an annular seat on the tubing hanger above said means, said seat forming a packing chamber with said bore, a packing in said chamber, means for compressing said packing, and means for locking said hanger against accidental rotation.

3. In a tubing head having a continuous upper bore, the combination of a unitary tubing hanger, means for securing said hanger within said bore to prevent longitudinal movement therewith, an annular seat on the tubing hanger above said means, said seat forming a packing chamber with said bore, a packing in said chamber, and means carried by said hanger and accessible independently of said securing means for compressing said packing.

4. In a tubing head having a continuous upper bore, the combination of a unitary tubing hanger, means for securing said hanger within said bore to prevent longitudinal movement therewith, an annular seat on the tubing hanger above said means, said seat forming a packing chamber with said bore, a packing in said chamber, means carried by said hanger and accessible independently of said securing means for compressing said packing, and elevator lugs integral with said hanger above said packing compressing means.

ARTHUR L. LEMAN.